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Analysis of trial forecast for rainfall ratings

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In 1975, four forecasting stations (herein called A B C D), carried out a trial to see if 3 day forecasts of the probability of rain could be an acceptable alternative to the present dry-spell forecasts.

Forecasts were made in the evening covering the next 3 (2100h–2059h) days on a 1–5 scale, where

1	≡	10% expectation of 1 mm of rain or more
2	≡	25% expectation
3	≡	50% expectation
4	≡	75% expectation
5	≡	90% expectation

A zero category was omitted because a previous similar trial in 1963 had indicated that "certainties" were 10% wrong even on Day 1.

The results show that a high degree of success was obtained, although there was a tendency to be optimistic in "dry" weather and pessimistic in unsettled weather.

Station D, which gave the poorest results for Day 3, is the one with the most frequent rainfall, and in a site most liable to suffer weather changes. ADAS Offices in the Yorkshire and Lancashire region have expressed enthusiasm for this type of presentation, which would facilitate a continual updating of dry weather prospects.

	Forecast Category	Station	Total	1 mm or more Exp.	1 mm or more Act.	Forecast Category	Station	Total	1 mm or more Exp.	1 mm or more Act.
Day 1	1 (10%)	A	38	3.8	3	2 (25%)	A	12	3.0	3
		B	41	4.1	6		B	18	4.5	5
		C	31	3.1	3		C	15	3.7	4
		D	25	2.5	4		D	10	2.5	3
			135	13.5	16			55	13.7	15
	3 (50%)	A	8	4.0	2	4 (75%)	A	11	8.3	3
		B	7	3.5	3		B	4	3.0	1
		C	11	5.5	3		C	11	8.3	4
		D	15	7.5	12		D	16	12.0	10
			41	20.5	20			42	31.6	18
								Total	Error Sum	
	5 (90%)	A	9	8.1	6	1-5	A	78	10.2	
		B	7	6.1	6		B	77	5.0	
		C	11	9.9	9		C	79	8.1	
		D	13	11.7	12		D	79	8.8	
			40	35.8	33			313	32.1	

Sums of Errors of ABCD taken together:

Day 1. 313 forecasts 20.8 (6.7%)

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	Forecast Category	Station	Total	1 mm or more Exp.	1 mm or more Act.	Forecast Category	Station	Total	1 mm or more Exp.	1 mm or more Act.
Day 2	1 (10%)	A	39	3.9	5	2 (25%)	A	9	2.2	3
		B	55	5.5	10		B	13	3.2	6
		C	36	3.6	5		C	22	5.5	8
		D	27	2.7	8		D	10	2.5	3
			157	15.7	28			54	13.4	20
	3 (50%)	A	19	9.5	4	4 (75%)	A	6	4.5	4
		B	8	4.0	4		B	0	0	0
		C	11	5.5	4		C	7	5.3	3
		D	14	7.0	9		D	19	14.3	14
			52	26.0	21			32	24.1	21
									Error Sum	
	5 (90%)	A	4	3.6	0	1-5	A	77	11.5	
		B	0	0	0		B	76	7.3	
		C	3	2.7	3		C	79	8.0	
		D	8	7.2	6		D	78	9.3	
			15	13.5	9			310	36.1	

Sums of Errors of ABCD taken together

Day 2. 310 forecasts 31.3 (10.1%)

	Forecast Category	Station	Total	1 mm or more Exp.	1 mm or more Act.	Forecast Category	Station	Total	1 mm or more Exp.	1 mm or more Act.
Day 3	1 (10%)	A	25	2.5	3	2 (25%)	A	25	6.3	5
		B	42	4.2	11		B	26	6.5	7
		C	28	2.8	5		C	24	6.0	6
		D	26	2.6	11		D	18	4.5	10
			121	12.1	30			93	23.3	28
	3 (50%)	A	19	9.5	8	4 (75%)	A	6	4.5	2
		B	7	3.5	2		B	0	0	0
		C	19	9.5	8		C	5	3.7	2
		D	13	6.5	10		D	19	14.3	8
			58	29.0	28			30	22.5	12
									Error Sum	
	5 (90%)	A	1	0.9	0	1-5	A	76	6.7	
		B	0	0	0		B	75	8.8	
		C	3	2.7	2		C	79	6.1	
		D	1	0.9	1		D	77	23.8	
			5	4.5	3			307	45.4	

Sums of errors of ABCD taken together

Day 3. 307 forecasts 35.7 (11.6%)

Any comments or suggestions on this paper should be referred to the author.

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Bracknell

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